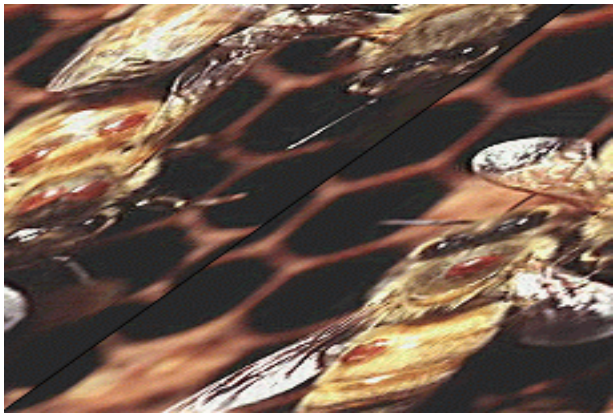

VARROA DESTRUCTOR

The parasitic bee mite, *Varroa destructor* (= *jacobsoni*) is one of the most serious pests of the honey bee, *Apis mellifera*, and its introduction into new countries is causing much concern to beekeepers throughout the world. The first Varroa species, *Varroa jacobsoni*, was described on *Apis indica* (= *cerana*) from Java in 1904. Recent studies by D.L. Anderson and J.W.H. Trueman** show that *Varroa jacobsoni* is a species complex containing 18 different genetic variants that belong to 2, possibly 5 different species of Varroa. Anderson and Trueman indicated that they were unable to find morphological differences to distinguish the genetic types.

The first report of *Varroa* attacking *Apis mellifera* (a new host) was in 1962 on a sample sent to the USDA in Beltsville from Hong Kong, and in 1963 in the Philippines. The mite has since become established on every continent except Australia and will continue to spread due to commercial transport of bees and queens; the migratory activities of beekeepers; swarms that may fly long distances, or be carried by ships or aircraft; and drifting bees.

The adult female *Varroa* is oval and flat, about 1.1 mm long and 1.5 mm wide, pale to reddish-brown in color, and can be seen easily with the unaided eye. Male mites are considerably smaller and are pale to lightly tanned. Adult bees serve as intermediate hosts when little or no brood is available and as a means of transport. The females attach to the adult bee between the abdominal segments or between body regions (head-thorax-abdomen), making them difficult to detect. These are also places from which they can easily feed on the bees' hemolymph. The adult bee suffers not only the loss of blood but may be subjected to microbial invasion, leading to a reduced life expectancy.

The most severe parasitism occurs on the older larvae and pupae, drone brood being preferred to worker brood. The degree of damage depends on the number of mites parasitizing each bee larva. One or two mites will cause a decrease in vitality of the emerging bee. Higher numbers of *Varroa* per cell result in malformations like shortened abdomens, misshapen wings, deformed legs or even in the death of the pupa.

The adult female *Varroa* enter the brood cells shortly before capping and must feed on larval hemolymph before they can lay eggs. Each mite lays 2-6 eggs at approximately 30-hour intervals. The first egg usually develops into a male and the later ones into females. The development proceeds from egg to six-legged larvae, to eight-legged protonymphs, to deutonymphs, to sexually mature adult mites in 6 to 10 days. They mate in the capped cells with the males dying soon afterward. All immature mites will die after the emerging bee opens the cell, while the young adult female mites and the mature (gravid) females move on to passing bees. The mite enters another brood cell in 3 to more than 150 days depending on the season and availability of brood.

**Anderson, D.L. and J.W.H. Trueman, 2000, *Varroa jacobsoni* (Acari:Varroidae) is more than one species. Exp. Appl. Acarol. 24(3):165-189. Updated: October 24, 2002